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EDUCATION POLICY AND ITS CONTRIBUTION TO SOCIOECONOMIC DEVELOPMENT OF NEPAL WITH REFERENCE TO SOME SELECTED ASIAN COUNTRIES

Abstract:

Among a few crucial factors education is the most influential factor for the economic growth and socioeconomic development of a country. Basically, the short-run policy of education tries to address the short-term social and economic goals of the country through awareness programs on safety, health, environment etc. but in the long run, it is directly related to the Human resource development(HRD) and socio-economic development of a country. This research paper tries to focus on the instrumental role of education in human capital development and economic growth. In fact, most of the in developing countries like Nepal are facing the problems with the educational system, education attainment, and research and innovation. In a meaningful way, it is also pronounced as the human capital development policy. Economist Theodore Schultz invented the term in the 1960s to indicates the value of human capabilities. He believed human capital is like any other type of capital that can be invested in education and training to enhance the benefits for an improvement in the quality life and Socio-economic development. This research tries to dig out development strategies by using time series data of investment in all level of education, general enrolment ratio in various level of education, labor force participation and combined impact in GDP with the help of OLS method. The result shows that investment in education, training, and vocational education have the positive and significant role in economic growth and socio-economic development of Nepal and other developing countries.

Keywords:

Education policy,
socioeconomic development,
OLS method

JEL Classification: I28, I25, C82

1. Introduction (including justification)

Among a few crucial factors education is the most important factor for the development and betterment of the country. Basically, a short-run policy of education tries to address the short-term social and economic goals of the country through awareness programs on safety, health, environment, food security etc. but in the long run, it is directly related to human capital development, productivity, economic growth and ultimately socio-economic development of a country. In this research paper, I tried to focus on the instrumental role of education in socio-economic parameters such as poverty reduction, women empowerment, environmental protection, health promotion, human capital development, and economic growth as well. Education is both theoretically and empirically proven to be relevant in fighting poverty, creating more opportunities in the labor market, economic growth and ultimately socioeconomic development of the nation.

But the history of education in Nepal is not so longer as so far. After the revolution of 1951 brought a turning point in the educational history of Nepal. The collapse of the Rana regime (104 years old elite family ruling) politics helped to create new values not only in politics but also in the education sector as well. The basic concept of elementary education started Since 1954 after the restoration of democracy in Nepal. Primary schools in the country from 321 in 1951 to over 7250 within two decades along with an increase in the Nepal's Gross Enrolment Rate in elementary education from under 1 percent in 1951 to an impressive 32 percent in 1970 (MoE, 1971) after starting mass education policy in Nepal.

The concept of mass education started in Nepal since 1971 with the introduction of the New Education System Plan (first time in the nation's history embraced the concept of mass education). Net Enrolment Rate (NER) at the elementary level increased from below 30 percent in 1971 to over 87 percent in 2006 (MoE, 2006) shows tremendous progress in this period. Moreover, the right to basic education to all has now become recognized as a fundamental human right in Nepal (MoE, 2007) after the restoration of multiparty democracy. Providing universal access to basic education has been well established in Nepal by declaring its commitment to the Education for all to expand education for an access to all Nepali children (MoE, 2007).

Principally, Nepal constitution (1990) and The Child Rights and Welfare Act, (2008/1991) have made clear provision as a safeguard in the form of Rights of the Children. The Basic and Elementary Education Project (BEEP) II (1999-2002) has been developed Early Child Development (ECD) programs to ensure inherent skills and potentialities of children to flourish. Emphasizing on holistic development of a child, BPEP II has implemented community-based ECD program in 42 districts (out of 75 districts of the country) with 5700 targeted number of community-based ECD centers by 2004 also supported by the NGOs.

The tenth Five Year Plan (2003-2007) took the objective of planning to establish further 13,000 centers for the period.

As per the 2004 ECD strategy, District Child Development Boards (DCDB) have been constituted to make them responsible for coordinating and liaising with government and local participation under which Village or Municipal Education Committee is responsible for coordinating the child development activities at the local level (UNESCO, 2006). On the whole, the government policy for the development of ECD program and government's commitment to the Education for all (EFA) in Nepal is favorable with the special focus on vulnerable children. As a result, 33,404 ECD/ Public-private community (PPC) out of the total 28,773 (86.1%) ECD as community-based as well as community schools based ECD/PPCs and rest (13.9%) under institutional schools are running in Nepal.

Table 1.1: Total number of ECD/PPCs by types and eco-belts

Eco-belts	community	Institutional	Total number of Institutions
Mountain	2,890	158	3,048
Hill	12,873	1,376	14,249
Valley	795	1,099	1,894
Terai	12,215	1,998	14,213
Total	28,773	4,631	33,404

Source: Flash report 2011-2012

According to the survey of 2011/12 (table 1.1), there are some eco-belts which are Mountain, Hill, Valley and Terai and institutions are a community and institutional and total ECD/PPCs are recorded as 33,404 (Flash report 2011-2012). It shows that there is significant work is done in these sectors but not enough.

In 2015 New constitution was promulgated in federal structure (after 10 years' civil war started from 1996, the collapse of the monarchy in 2006). Human development report (HRDs, 2014) shows that there are some significant improvements in primary, secondary and tertiary education enrollment rate as well as quality aspect as well. Basically, these

improvements are in women education. Now in Nepal, there is very good starting in gender development in school and other sectors. The constitution of 2015 provided much more rights to promote gender and minorities ethnic groups (Nepal Constitution 2015). All the rights about education (ECE and Youth education) are preserved as a basic human right (Nepal constitution, 2015). In the light of the relationship between education and economic growth, the study of (Khan & Khattak, 2012) suggested that the government should leave no stone unturned for the Universalization of Primary and secondary education (UPE) and explore the sources of dropout rate.

Now Nepal has recently passed from unilateral monarchy system to multilateral federal system. The country has unutilized or underutilized natural and human resources. Most of the human resources are either unskilled or less skilled due to limited exposure to formal education, vocational education, and training. Even the educated people have less practical exposure and less entrepreneurship mindset.

Basically, all these above problems are interrelated with education, education attainment, and research and innovation. In a broad sense, it is also pronounced as the human capital. Economist Theodore Schultz invented the term in the 1960s to reflect the value of our human capacities (Schultz, 1961). He believed human capital is like any other type of capital that can be invested in education and training to enhance benefits for an improvement in the quality and level of production. So human capital is most important factor in economic growth and social change Todaro and Smith (2015).

Socio-economic development as a process is measured with indicators such as GDP, life expectancy, literacy and levels of employment. Its causes are new technologies, changes in laws, changes in the physical environment and ecological changes all leading to personal freedom, dignity and satisfaction.

The concept of social capital draws from various disciplines and sectors and has breathed new life into debates concerning the role and importance of "the social aspects" of development. There is a growing awareness that community life and institutional quality together have an important bearing on the capacity of societies to manage risk, embrace change, and seize the opportunity. In the light of the mentioned problems, a need for skilled human resources, or educated think tanks able to understand and tackle with the given situation seems to be critical.

Lifting restrictions on access, however, is not the same as deliberately expanding access to education. The growth in the number of schools during this period was more a result of a community effort than that of the State. But things changed in 1971 with the introduction of the New Education System Plan that for the first time in the nation’s history embraced the concept of mass education that undoubtedly came as the most important turning point in the development of Nepal’s education sector.

Study Region

For the comparative study, the six countries such as India, China, Bangladesh, Bhutan, Pakistan, and Nepal are taken into cross country comparison. There are two reasons behind selecting these countries as a cross-country comparison. One reason is China and India are Nepal's neighboring countries having very successful and systematic development approach. Nepal cannot stay very far from development pattern of these countries due to trickledown effect, this is very important. The second reason is all these countries have a similar situation of macroeconomic performance except China.

2. Background of the study area

Increasing the "quantity" of education, however, is but one step in creating an educated, open and justice society. An equally important step is the enhancement of education quality. Nepali students consistently rank poorly in mathematics and science by international standards and have learning outcomes significantly below the targets specified by the national curriculum. Also around 50 percent failure rates in the School Leaving Certificate Exams (exam of grade 10) as the routinely observed reality is the indicative of quality crunch in education (Bhatta 2004, 2005). Coupled with the problem of overall poor education quality is the issue of increasing disparity in education quality across school types (public vs. private), locations (urban vs. rural, remote vs. accessible), and population groups (males vs. females, privileged ethnic groups vs. marginalized ethnic groups).

Owing to a poor performance of public schools in the board exams than that of private schools, public schools are obliged to enroll learners from the poor segments of the society only through the public schools account for over 75% of the total student population enrollment. This indicates worsening inequities across different socio-economic population groups and the quality disparity as the twin problems facing Nepal.

Due to lack of adequate management of capital, technology, and human resources, developing countries often fail to exploit their natural resources. Todaro and Smith (2015) pointed out the lack of skilled manpower in developing economies as one of the constraints for development. Drucker (1974) observed that a country is underdeveloped because it is undermanaged and unexpectedly, management has become a critical constraint in the underdeveloped countries which in turn reminds the concept of World Development Report (2009) that economic growth is seldom balanced. For instance, high poverty, illiteracy, and mortality in some parts of the world set against the prosperity, literacy, and longevity in other parts are challenging the balance and resulting in ever-growing gaps between the developed and developing world to be urgently addressed to protect the enterprises in developing countries until they are ready to compete (World Bank 2009).

The importance of education can be analyzed from women empowerment point of view as well. Women education is penetratingly associated with the formation of women's identity, decision-making capability, mobility and contribution to the socioeconomic development of household, community, and nation. For decades, in developing-patriarchal countries like Nepal men's preference advocated for women's modest education. Hence, how especially education empowers women by enhancing their active participation in the sustainable socioeconomic growth and human capital development (by delaying marriage, managing family-size, increasing gross family income and escalating literacy rate) needs to be studied. Education is fundamental to promote agency, which expresses the capacity of rural poor to escape from poverty and hunger

with their own power. An educated is more likely to find a job, but has also, ceteris paribus, a capacity to use more rationally the resources he or she owns. Educated and informed people have more probability to select valuable objectives in life, such as having stable access to food for their household. Even in this argument, there is a gender factor (Sen, 1999). Quoting Sen (1999), "female literacy is unambiguous and statistically significant reducing the impact on under-five mortalities, even after controlling for male literacy." Therefore, a more active role of women in the family is likely to lead to lower mortality rates, the higher educational rate in a family, arranging comfortable family size are crucially important.

Nepal has recently passed from unilateral monarchy system to multilateral federal system. The country has unutilized or underutilized natural and human resources. Most

of the human resources are either unskilled or less skilled due to limited exposure to education and vocational training. Even the educated people have less practical exposure and less entrepreneurship. Thus, Major problems of Nepal are either absolute or related poverty, high population growth rate, greater social fractionalization, underdeveloped financial and other markets, adverse geography, lower level of industrialization, low level of living and productivity, large and rapid migration of rural populations to urban areas, lingering colonial impacts such as poor institutions and often external dependence, political instability, and lack of social security and more.

Basically, all these above problems are interrelated with education, education attainment, and research and innovation. In a broad sense, it is also pronounced as the human capital. Economist Theodore Schultz invented the term in the 1960s to reflect the value of our human capacities Schultz (1961). He believed human capital is like any other type of capital that can be invested in education and training to enhance benefits for an improvement in the quality and level of production.
Socio-economic development as a process is measured with indicators such as GDP, life expectancy, literacy and levels of employment Todaro and Smith (2012). Its causes are new technologies, changes in laws, changes in the physical environment and ecological changes all leading to personal freedom, dignity and satisfaction. Recently Dahal, G. (2016) uses granger casualty and found there is triangular Casualty among education, health, and economic growth by using time series data of Nepal and also recommend that there is a high role of education and health in economic growth and socioeconomic development.

3. Rational and objectives of the study

The main objective of this study is to analyze the role and contribution of education in socio-economic development of Nepal. The specific objectives in compliance to the main objective are as follows

- To overview the past development in education sector and analyzing the current education policies and finding the policy gap.
- Cross country comparison in Asian region to find status of Nepal.
- To identify the long run relationship between education and economic growth.
- To analyze the past data and finding the influence of education in economic growth and socioeconomic development of the country.
- Recommendation for future policy implication.

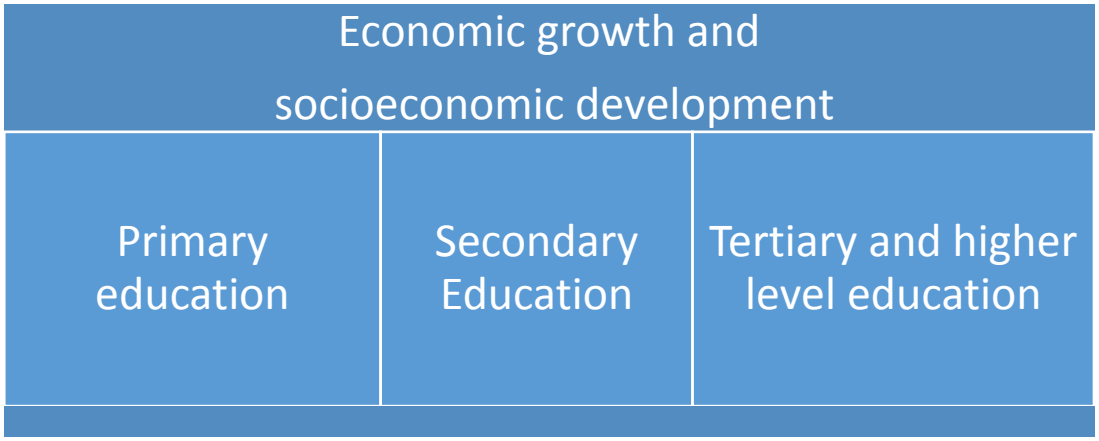
4. Research Hypothesis:

To fulfil above objectives of the study, following three hypotheses in the research area have been formulated:

- H0a: Primary education, Secondary education and Tertiary and higher education policy has significant role in socioeconomic development in of Nepal
- H0b: There is existence of long run relationship in education (a well-educated human capital) and GDP Per Capita in Nepal

5. Conceptual Framework

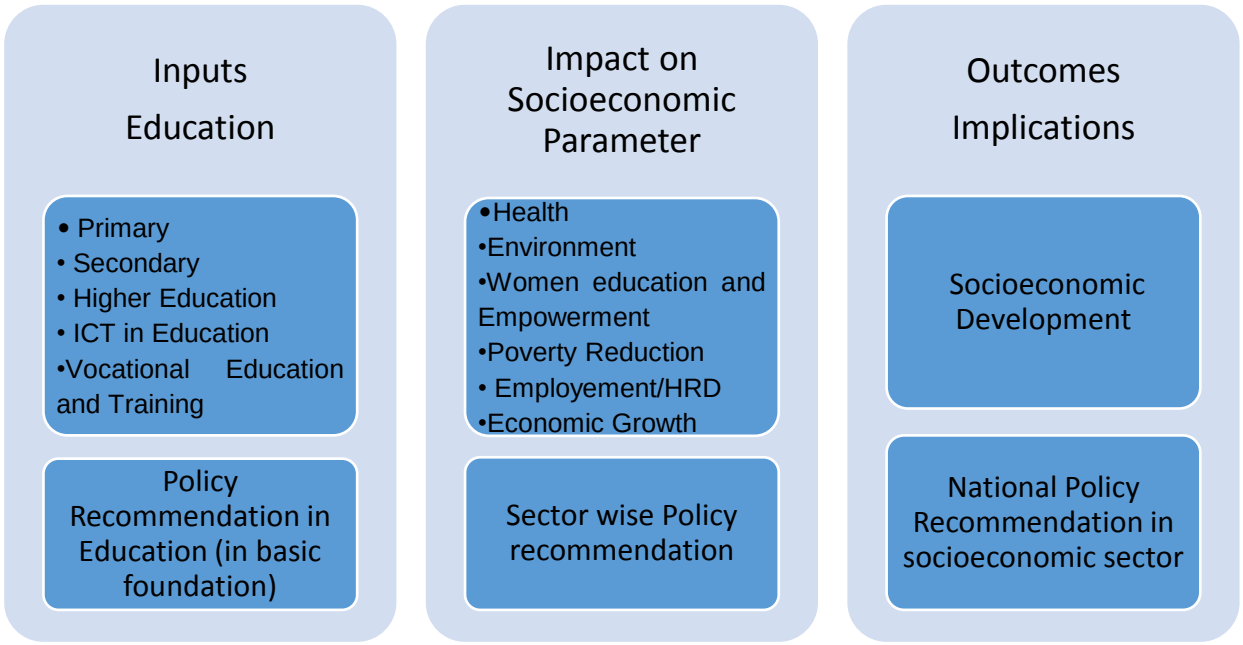
Table 1.1: General Conceptual Framework



Source: Authors Ph.D. framework

In this conceptual framework (table 1.1) Economic growth and socioeconomic development are taken as a dependent variable and various level of education are taken as the independent or intervening variables. By making a certain change in intervening variables the result can be obtained as an outcome in the form of economic growth and socioeconomic development.

Table 1.2: Comprehensive conceptual Framework



Source: Author's Ph.D. framework

In the second comprehensive conceptual framework (table 1.2) shows there are three sectors to be considered for this study in inputs as an education under this heading only primary, secondary and tertiary level of education are taken, in impact sectors there are number of parameters among them economic growth is considered and in output there is socioeconomic development as an implications then only national policy can be recommended in various sectors. This is the most complex structure of socioeconomic development. here only necessary variables either input or impact or outcome are taken into consideration.

6. Literature review with Descriptive analysis and cross country comparison

Poverty, unstable and undergrowth of GDP, unemployment, and high age dependency ratio are common issues in the most of the developing countries such as Asia, Africa, and Latin America. Data clearly shows that more than 1.3 billion people earn less than US $1 per day, people in these countries have been afflicted by poverty and hunger over long periods (Sinnathurai, 2013, p. 67-82). He clearly scrutinizes the nexus among poverty, economic growth, employment and dependency ratio in Asia, Africa and Latin America and found that poverty, poor and unstable growth of GDP, unemployment, and high age dependency ratio are common issues in the most of the developing countries and thereby people of these countries have been afflicted by poverty and hunger over the long period. In an analysis, he also shows that lower the labor productivity lowers the economic growth

and higher the unemployment and poverty. On the contrary, high dependency ratio in a family or in the case of the developing countries leads to lower productivity of such labor force. Thus, this proves an inverse relationship between poverty and employment and also poverty and economic growth.

Schultz (2009) identifies that higher rate of economic growth pays the way the sustained and stable increase in productive capacity, employment opportunities with rising productivity are generated. In fact, this enables the country to absorb more employees in the production and allied activities and thereby decreasing unemployment. These conditions help including poor people in the industrial activities and thus, are benefitted in turning productive labor force finally helping to standardize their lifestyle.

Hawkes & Ugur (2012) have come up with the idea of human capital as having a wide range of benefits for individual, society and the economy as a whole. In other words, education in terms of personal health, lowering crime rates and environmental protection is the key determinant of economic growth and development. These perceived concepts tie in with the focus of policy on the Millennium Development Goal as the key factors in sustained economic development (UN, 2000). The study has a finding that the countries with higher growth rates are likely to experience a more rapid reduction in poverty. Using province-level panel data, this has been demonstrated to hold for Kazakhstan where it was found that inequality declined slightly over the recent high-growth period (1998–2003) accompanied by the reduction in poverty gap and severity. Hawkes & Ugur (2012) add growth reduces poverty by leading to increased employment and higher real wages. It has further been shown in their study that provinces (regions) of Kazakhstan that received higher expenditure on social sectors experienced a larger decline in poverty indicating the need for sustained, increasing expenditure for the social sectors, more so in the poorer provinces, possibly through additional support from the national government.

A study by Afzalet et al (2012) analyzes the relationship between education and economic growth and demonstrates that nations cannot be developed without investing in education perceived as a multidimensional process. It reduces poverty by increasing productivity and hence, the study proves strong linkages between poverty and education, and education and economic growth in turn. In the similar vein, Nowak et al (2016) analyze the women education and empowerment and Its Impacts on Socioeconomic Development, a comparative analysis of Bangladesh and Nepal and found that women education empowers women by enhancing their active participation in sustainable socioeconomic growth and human capital development (by delaying marriage, managing family-size, increasing gross family income and escalating literacy rate) it ultimately enhances socioeconomic growth and wellbeing of the society.

The term human capital was used first used in 1960’s and 70’s, when Schultz (1961) gave different point of view regarding the concept and formation of human capital, though it got

importance by the emergence of endogenous growth theory given by Lucas (1988) and Romer (1989, 1990). Mankiw et al. (1992) used human capital in production function to justify higher economic growth from higher investment in human capital. Many kinds of literature related to this research argued that education is the first step in the path of the development process. It plays a very crucial role in the building of human capabilities and enhancing economic growth in which investors also like to invest due to a stock of human capital. Education is the imperative part of human competency and sovereignty (Sen, 1999). Kim & Terada-Hagiwara (2010) elaborated the importance of well-educated labor force in the diffusion and adoption of new technology and new methods of production as found to have played a crucial role in developing countries like Pakistan, that have a shortage of physical and human capital (HDR, 2001; Adawo, 2011).

Like many economists, Adiqa (2011) found the key role of higher education in an economy to grow, flourish and expand career opportunities. The study brings into light that first quantity and quality of education affect highly the labor force, governance and the working conditions of most the institutions. Thus, it is not denying that education is the major determinant for developing the climate for investment in human capital stock. The relationship between education and poverty is quite clear; educated people have higher earning potential and are better able to improve the quality of their lives, which means they are less likely to be marginalized within the society at large (UNESCO, 1997).

Nowak, A. Z. & Dahal, G. (2016) used OLS diagnostic to identify the relation between education and economic growth of Nepal and they found it is significant and positive relation between school attainment and economic growth. Similarly, Wolff & Gittleman (1993) examine the relation of higher education level with labor productivity index. They have found a high correlation between university enrollment ratio and labor productivity growth. In the case of science and technology education, the study has a finding that the more the scientists and engineers are produced by the universities, the more is the economic growth.

Bloom, Hartley & Rosovsky (2006) emphasize on the financial returns generated through tax and paid by individuals. Their study has estimated positive impacts of research and innovation through higher education on economic activity, but emphasized more on financial returns and less on educational returns. But, no such research or study seems to have been undertaken to examine the situation in the poor or developing countries.

Using time series data for Pakistan from1960 to 2003, Abbas &Peck (2007) have estimated the correlation between human capital and economic growth using OLS technique. They view that human capital has been accounted for about 40 percent increase in GDP with an increase of one percent human capital. Therefore, they have suggested that only low/no investment in education may be one of the reasons of low economic growth stemming from low investment in human capital. Thus, it has been

concluded that the higher the level of education of the population the lesser will be the number of poor individuals because education impacts knowledge and skills which are supportive in higher wages (Tilak, 1994). In the developing countries, the social returns of primary education are much higher as compared to that of tertiary education and thus, it is found to be linking millennium development goals also.

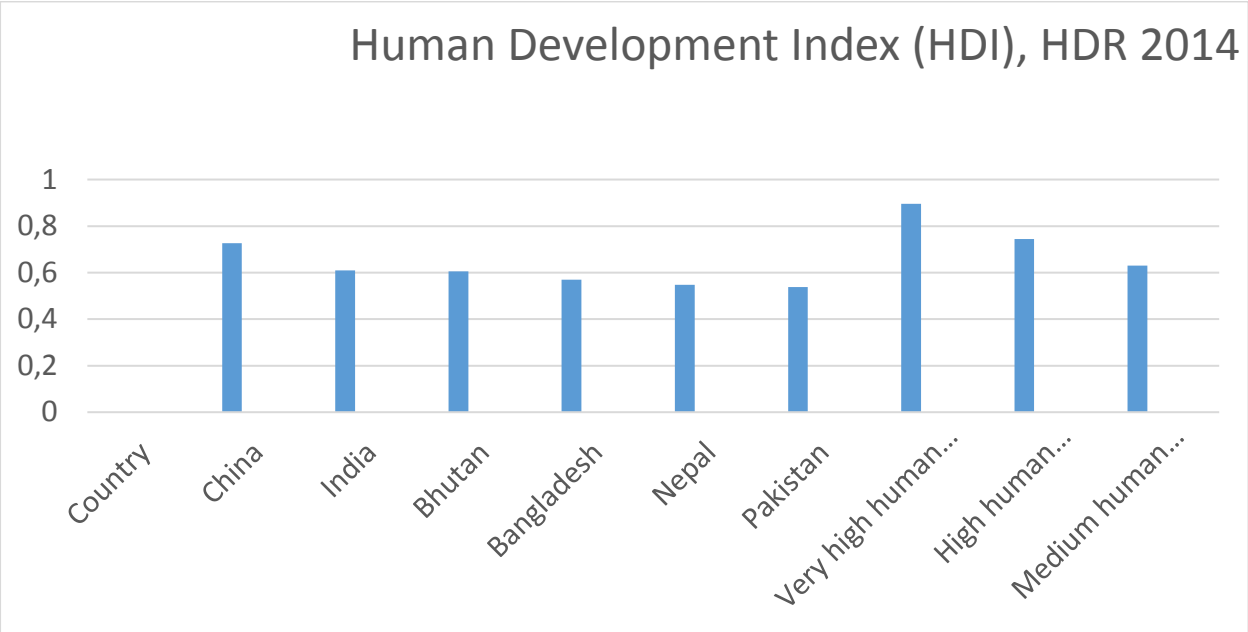
Ojha, K.P. (2012) argues that Millennium Development Goals or Universal Primary Education cannot be achieved by only universalizing primary education. Primary education is necessary but not sufficient. Similarly, Njong (2010) have found that the provision of primary education without giving right consideration to secondary and higher education constrains development through the absence of up-to-date curriculum, lack of skills in administrative posts and in management and he has notably shown a linear relationship between education and earnings. Education increases the probability of being employed as better-educated individuals earn considerably more than less-educated in employment.

Jandhyala & Tilak, (2006) focus on the sustainable socio-economic development of the society through sustainable education systems. The study points out that only strong and vibrant education system based on sound assumptions and approaches can play the constitutive and instrumental roles in development as it replaces the traditional ways of economic involvement with time relevant ways. In the same vein Dahal, G. & Nowak, A.Z. (2016) focuses on linking the educational and socioeconomic development of the country. Especially in developing countries education plays the crucial and significant positive role in socioeconomic development.

Wedgwood (2005) examine how progress to post-primary education has become limited to those able to supplement education through private means in the areas having better schools. The study has indicated the issues of quality as a major problem that has raised questions of sustainability. It further provides a glimpse that narrow post-primary education system has been a major limitation. For instance, in Tanzania, the secondary education system is not producing enough quality graduates to supply enough primary teachers. Thus, a strong case can be made for public investment in secondary in order to establish a good foundation on which to build quality UPE.

Descriptive analysis and cross country comparison

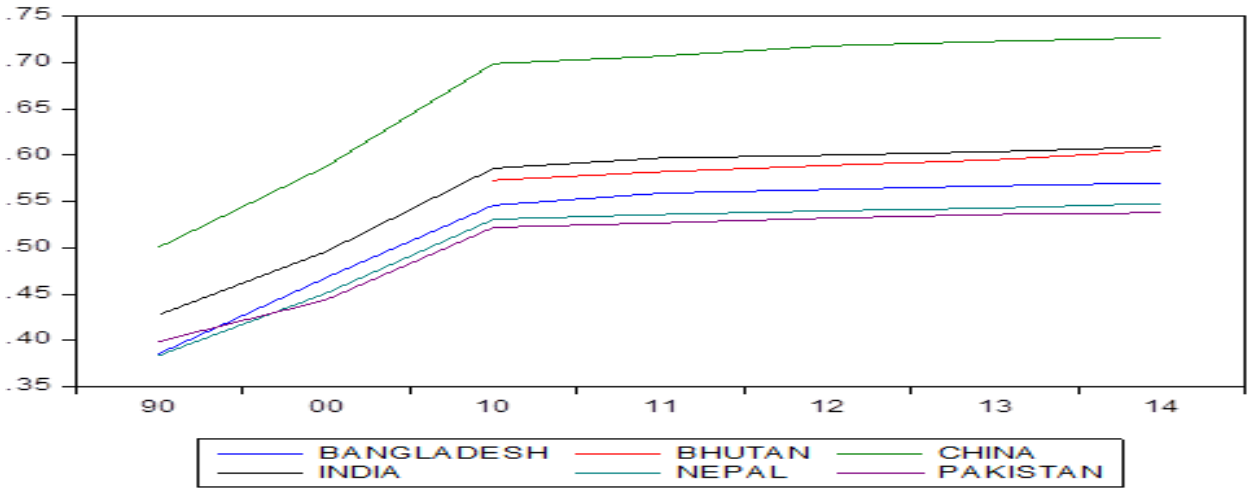
Figure 1: Human resource development Index (HDR, 2014)



Source HRD report (2015)

The above analysis (figure 1) clearly shows that China is doing top most progress in Asian countries which are basically under study in this research paper. India, Bhutan and Bangladesh are also flowing high HDI value. Nepal and Pakistan are also in progress.

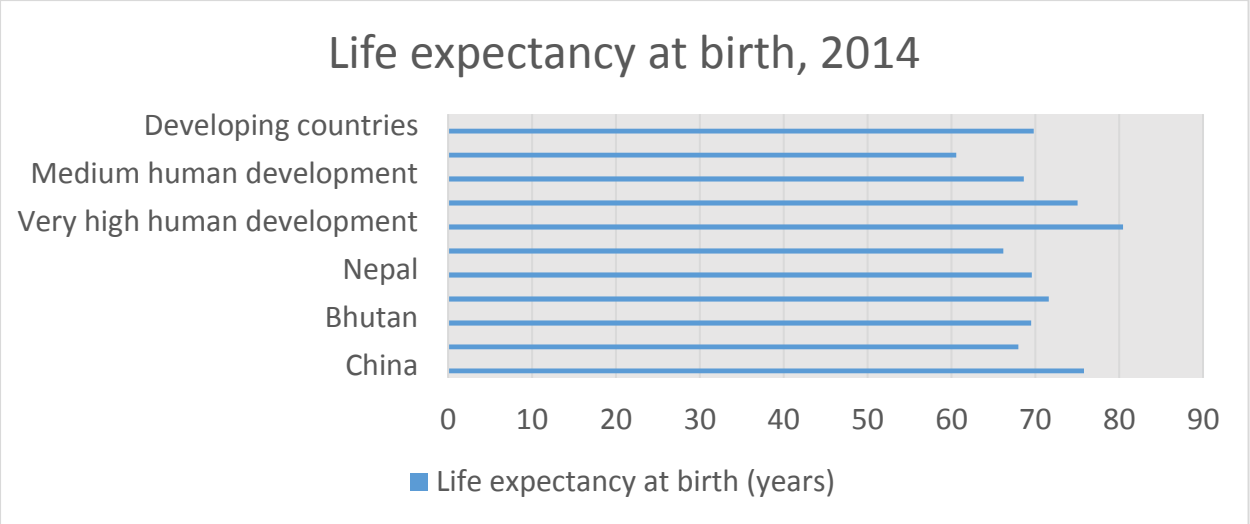
Figure 2: Trend of HRI in the selected Asian region



Source HRD report (2015)

The trend of HDI also proves the above analysis (figure 2) China is in the top from beginning of the study period. India and Bhutan are in high pace of development and other countries are also in progress but slow rate.

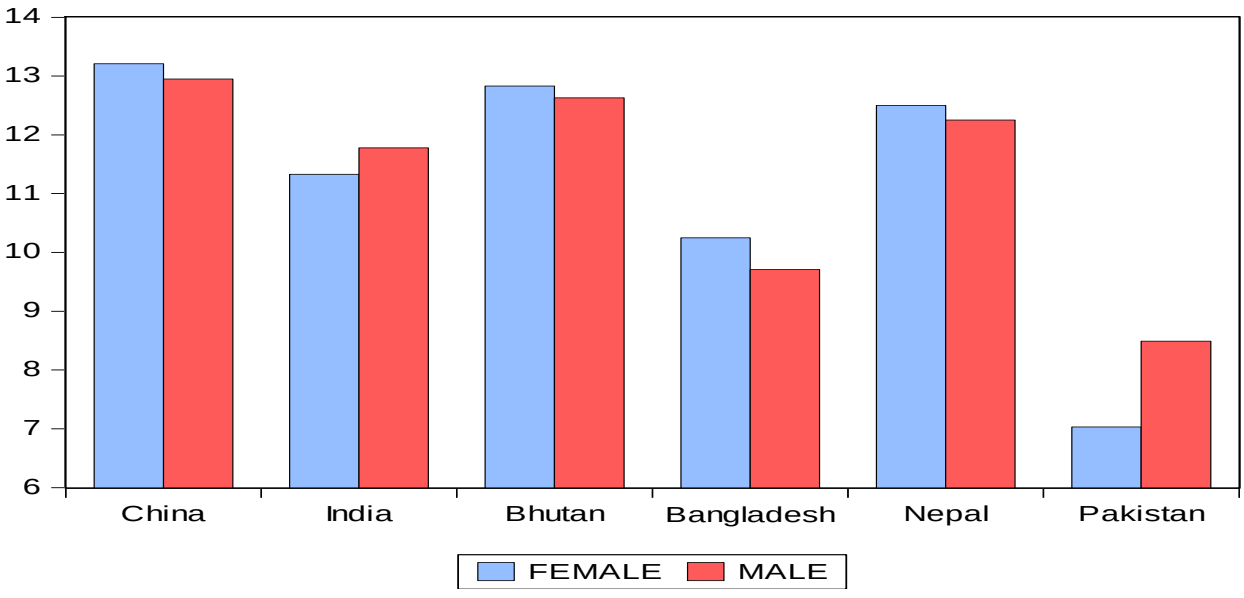
Figure 3: Life expectancy at birth (2014)



Source world Bank data (2015)

Life expectancy is also important indicator of development and growth. In this analysis China (figure 3) is in the front line and other countries are just following.

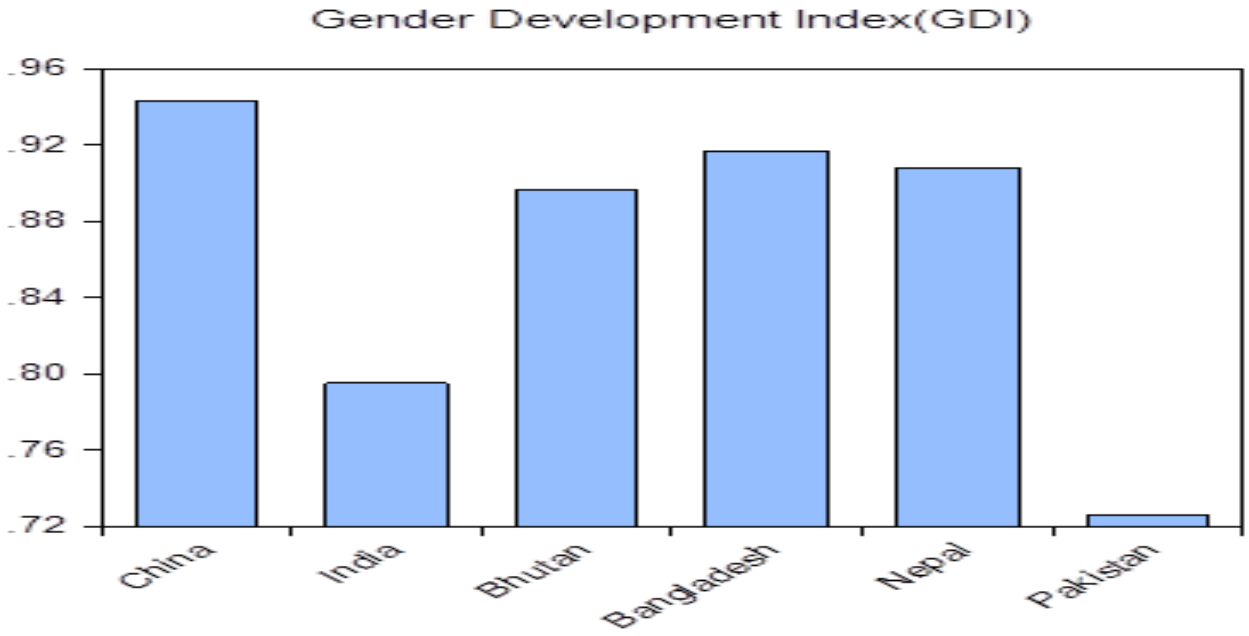
Figure 4: Expected years of schooling including Gender prospective



Source world Bank data (2015)

In above figure 4 expected years of schooling means total number of schooling which is highest in China and most important part is that women's schooling is greater than men. Then Bhutan and Nepal in the second category and women's education is also greater than men's education. But India, and Bangladesh are following but Pakistan is in the lowest situation. In addition, women's education is in terrible situation.

Figure 5: Gender development index



Source world Bank data (2015)

Gender development index is another important part in this study. In above gender development index (figure 5) of China is in top position but Nepal, Bangladesh and Bhutan are following. India is in little bit lower size but Pakistan should revise their educational and women empowerment policy. Data shows that there is gender gap.

7. Data and methodology

In research the reliability of empirical results always depends upon reliable data, data frequency, data span, data sources and the methodology used in the analysis. This section includes data sources and methodology that have been used in the analysis.

Data Sources

The present study used annual time series data from 1995to 2013 which are taken from world Bank (WB) data source, International Monetary Fund (IMF) and other development reports like World Development Indicators (WDI) and United Nations Development Program (UNDP).

Methodology

The technique of Ordinary Least Square (OLS by Carl Friedrich Gauss) is used because under certain assumptions namely, the equation to be estimated is linear in parameters, is non stochastic, has zero mean value, possess equal variance of distribution etc. it becomes a powerful method of regression analysis. The study period of this research is 1995 to 2013/14 on the basis of availability of data. The following equation is used to estimate model.

- The technique of Ordinary Least Square (OLS Diagnostic by Carl Friedrich Gauss)
- Testing for long run association by Johansson Co-integration
- The study period of this research is 1975 to 2014
- Model specification:

LNY= C0 + C1*LNX1+ C2*LNX2+ C3*LNX3+ Et …….. (1)

Illustration of terminology:

Y=GDP=Gross Domestic Products (dependent variable), X1=GERP = Gross Enrollment ratio in Primary level, X2 =GERS= Gross Enrollment ratio in Secondary level, X3= GERT = Gross Enrollment ratio in Tertiary level, Et = Error term, C0 =constant coefficient, C1, C2, C3 denote coefficient of respective independent variable, LN = natural log

Table 1.3: Analysis of country base data for Nepal

Dependent Variable: LNY
Method: Least Squares
Date: 05/09/16 Time: 15:04
Sample: 1975 2014
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNX1	0.391742	0.345754	1.133005	0.2647
LNX2	0.713667	0.261425	2.729910	0.0097
LNX3	0.114332	0.115384	0.990889	0.3284
C	17.84562	0.974942	18.30429	0.0000

R-squared	0.897987	Mean dependent var	22.37402
Adjusted R-squared	0.889486	S.D. dependent var	0.502055
S.E. of regression	0.166901	Akaike info criterion	-0.648191
Sum squared resid	1.002815	Schwarz criterion	-0.479303
Log likelihood	16.96383	Hannan-Quinn criter.	-0.587127
F-statistic	105.6325	Durbin-Watson stat	0.257880
Prob(F-statistic)	0.000000		

Interpretations of analysis of result

R square is 0.8979 that means 89.79% value of dependent that is GDP can be explained by independent variables X1, X2 and X3

- There is positive and significant impact independent variable i.e. Enrolment in secondary (X2) and tertiary (X3) education in GDP
- Similarly, there is positive impact of Enrolment in primary education (X1) in GDP but less significant
- Individually only 50% independent variables are significant according to t-statistics but probability of F-statistics is less than 5% level so combined impact of independent variables X1, X2 and X3 in the model is significant to GDP that is dependent variable.

Table 1.4: Testing for long run association by Johansson Co-integration

Date: 05/09/16 Time: 15:08
Sample (adjusted): 1977 2014
Included observations: 38 after adjustments
Trend assumption: Linear deterministic trend
Series: LNY LNX1 LNX2 LNX3
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.552198	49.94236	47.85613	0.0314
At most 1	0.329060	19.41297	29.79707	0.4635
At most 2	0.103125	4.248092	15.49471	0.8825
At most 3	0.002949	0.112229	3.841466	0.7376

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.552198	30.52939	27.58434	0.0203
At most 1	0.329060	15.16487	21.13162	0.2775
At most 2	0.103125	4.135863	14.26460	0.8447
At most 3	0.002949	0.112229	3.841466	0.7376

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

LNY	LNX1	LNX2	LNX3
5.489139	-5.507933	-5.460718	0.735103
0.654692	-14.50321	10.08676	-2.129338
-3.227256	-2.963753	0.084307	3.571191
-2.950751	1.449618	3.078054	-2.068789

Unrestricted Adjustment Coefficients (alpha):

D(LNY)	-0.006981	0.000349	0.003718	-0.000837
D(LNX1)	0.027643	0.017151	0.008558	0.000961
D(LNX2)	0.042001	-0.013879	0.005557	-0.000255
D(LNX3)	0.047758	0.012403	-0.015570	-0.003638

1 Cointegrating Equation(s): Log likelihood 252.8989

Normalized cointegrating coefficients (standard error in parentheses)

LNY	LNX1	LNX2	LNX3
1.000000	-1.003424	-0.994822	0.133919
	(0.43761)	(0.31701)	(0.13588)

Adjustment coefficients (standard error in parentheses)

D(LNY)	-0.038318
	(0.01968)
D(LNX1)	0.151734
	(0.04888)
D(LNX2)	0.230549
	(0.04691)
D(LNX3)	0.262152
	(0.09285)

2 Cointegrating Equation(s): Log likelihood 260.4814

Normalized cointegrating coefficients (standard error in parentheses)

LNY	LNX1	LNX2	LNX3
1.000000	0.000000	-1.772997	0.294584
		(0.22374)	(0.16400)
0.000000	1.000000	-0.775520	0.160116
		(0.11535)	(0.08455)

Adjustment coefficients (standard error in parentheses)

D(LNY)	-0.038089	0.033390
	(0.01982)	(0.05561)
D(LNX1)	0.162963	-0.401001
	(0.04628)	(0.12989)
D(LNX2)	0.221463	-0.030047
	(0.04526)	(0.12701)
D(LNX3)	0.270272	-0.442933
	(0.09272)	(0.26021)

3 Cointegrating Equation(s):	Log likelihood	262.5493	
Normalized cointegrating coefficients (standard error in parentheses)			
LNY	LNX1	LNX2	LNX3
1.000000	0.000000	0.000000	-0.821671
			(0.21856)
0.000000	1.000000	0.000000	-0.328140
			(0.09751)
0.000000	0.000000	1.000000	-0.629586
			(0.12793)
Adjustment coefficients (standard error in parentheses)			
D(LNY)	-0.050088	0.022371	0.041951
	(0.02256)	(0.05566)	(0.04042)
D(LNX1)	0.135343	-0.426366	0.022773
	(0.05271)	(0.13006)	(0.09445)
D(LNX2)	0.203530	-0.046516	-0.368882
	(0.05203)	(0.12837)	(0.09323)
D(LNX3)	0.320520	-0.396788	-0.137000
	(0.10591)	(0.26133)	(0.18978)

Checking Test of Hypothesis

Table 1.3 (OLS Diagnostic) shows that

- H0a: Primary education has significant effect on economic growth in Nepal.
- H0b: Secondary education has significant effect economic growth in Nepal
- H0c: Tertiary and higher education has significant role in economic growth in Nepal

Table 1.4 (Johansson Co-integration) shows that

- H0d: There is existence of long run relationship in education (a well-educated human capital) and GDP Per Capita

Test of reliability and validity of data and model

- There is no serial correlation by using Breusch-Godfrey serial test
- There is no heteroscedasticity which is checked by Breusch-Pagan-Godfrey test
- Residuals are normally distributed which is tested by Histogram Normality that is Jarque-Bera test
- There is no multicollinearity which is tested by using VIF test, the VIF value is less than 10%.

Testing of variables and model:

- Using Augmented Dickey–Fuller (ADF) test shows that all variables are stationary, there is no random walk at certain level, either in no difference, first difference or second difference.
- ADF is used to test all three i.e. intercept, trend and intercept, and none by using automatic selection in Schwarz Info Criterion (SIC) test. It shows the significant results.
- According to Johansson Co-integration there is long run relationship between education and economic growth in Nepal

8. Conclusions and Recommendations

Conclusion:

In this research, the result of OLS diagnostic test shows that there is a significant and crucial role of primary, secondary and tertiary education in economic growth (GDP) and socioeconomic development of the country. According to Johansson Co-integration test, there is the existence of a long-run relationship between education and GDP of the country. If the objective of the country is enhancing economic growth, then first priority should be given to education. There is a Chinese Proverb “If you are planning for a year, sow rice; if you are planning for a decade, plant trees; if you are planning for a lifetime, educate people”. This proverb seems to be true in the case of education of developing countries like Nepal.

This research clearly shows that there is a crucial role of best educational policy in economic growth (say GDP) and socio-economic development of Nepal and many more least developed and developing countries. There should be a revision of educational policy and should address the low-income group, minorities, ethnical groups and socially excluded group should be inculcating in the mainstream of national educational system. So it concludes educational policy is the key factor of socioeconomic transformation.

Recommendation for policy implications:

In the light of current study, the following policies implications are recommended

- The concern authorities of developing countries like Nepal, high priority should be given for formal education in various levels primary, secondary and tertiary, vocational education and skilled based training and other HRD programs keeping education on top priority in public policies
- Various literatures show that school dropout rates in Primary, secondary and tertiary level in developing countries is chronic problem so concerned government, political parties, civil society and social workers should think what procedure can

be used to stop dropout rates for more enhancement and betterment of education system and to catch up this spirit education policy should be revised accordingly.

- Another disadvantage of developing countries' education system is gender biasness and women education is considered as a modest education that's why there is problem in women education and women empowerment. To address this fundamental issue of around 50% population of the country a gender friendly education policy should be initiated by the authorities of developing countries like Nepal keeping in mind women are also big human resources and their contribution to the economy should not be undermined.
- Considering the population as a demographic dividend of the country more budget should be allocated in general education, vocational education and training programs and budget should be properly utilized in the given time framework. Sometime in developing countries budget availability is not the problem but timely completion of the project and investing whole budget on time is the big issue. This attitude also promoting corruption in the developing countries.
- Developing countries should revise their policies regarding education specially in public sector. Government is fully funding to public all institutions but result of public sector education is more painful and worse in the case of Nepal and other developing countries as well. But in comparisons to public sector private sectors performance is little better but issue is how to finance to their children. There is heavy burden of big finance in the head of guardians of developing countries who want to develop their children's education in the private institutions.
- Research (Various literature reviews) also shows that Vocational education and skill based training have more impact on labor force participation in both genders and overall family income these programs should keep in top priority in public policy and planning commission of Nepal or authorized organization of the country should formulate short term and long term policies and those policies should be implemented in given time framework.

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